GRANT SNAPSHOT

2009 Ruth Fredman Cernea – Pancreatic Cancer Action Network – AACR Fellowship

Grantee:	Philippe Foubert, PhD
Institution:	University of California, San Diego
Research Project:	Role of Inflammation in Pancreatic Cancer
Award Period:	July 1, 2009 – June 30, 2010
Amount:	$45,000

Biographical Highlights

Dr. Foubert received his PhD in vascular biology and haemostasis from the Cardiovascular Research Institute, University of Paris, France, and then began postdoctoral training at the Moores Cancer Center at University of California, San Diego. His research focuses on the regulation of inflammation and anti-tumor immunity by myeloid cells (bone marrow-derived cells which infiltrate malignant tumors and promote tumor progression). Dr. Foubert's graduate work resulted in several scientific publications and two patents. He received the 2007 Young Researcher Prize from the French Angiogenesis Network and the 2006 Diderot Innovation Prize from the University of Paris.

Recognizing that urgent need to better understand the causes and care for pancreatic cancer, Dr. Foubert has decided to contribute to efforts to improve knowledge in tumor inflammation and antitumor immunity that may lead to development of new targeted therapeutic strategies for the disease.

Project Overview

During the progression of pancreatic cancer, inflammatory cells rush into pancreatic tumors, cause increased tumor growth and metastasis, and stop immune cells from recognizing the tumor as a foreign body and fighting to kill them. Dendritic cells are immune system cells that can play pivotal roles in anti-tumor responses. However, as pancreatic cancer progresses, dendritic cells become unable to activate an adequate immune response toward cancer cells. Factors produced by tumor cells and inflammatory cells keep these dendritic cells in an immature state, which suppresses the activation of killer cells, allowing tumors to grow. However, it remains unclear how inflammatory cells inhibit the maturation of dendritic cells.

In this project, which is funded in memory of Ruth Fredman Cernea, Dr. Foubert plans to explore this relationship. Specifically, he plans to study the role of alpha4 integrin, an inflammatory cell adhesion molecule, in the regulation of immunosuppression during pancreatic cancer progression. To better identify the role of alpha4 integrin, he will inject pancreatic adenocarcinoma cells in the pancreas of normal and alpha 4 integrin mutant mice to analyze how inflammatory cells affect dendritic cell function in pancreatic tumors. He also will use human pancreatic tumor specimens to characterize the relative balance of myeloid cells and dendritic cells to determine if tumor inflammation can predict poor outcomes.

The study is expected to provide new insights into the mechanisms that cause tumor-induced suppression of the immune system. Since tumor inflammation promotes tumor metastasis (spread), the funded projected has important clinical significance and may also lead to the development of new therapeutic strategies to treat pancreatic cancer progression and metastasis.